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Lesson 5 Creating Hyperlinks

Lesson Topics

- ▶ Hyperlinks
- ▶ Anchor Tag Syntax
- ▶ Types of Anchors
- ▶ Lesson 5 Summary

Hyperlinks

Using HTML to create an unlimited number of non-linear links between Web pages is arguably the most powerful and dynamic feature of the Web. Hyperlinks, technically called *anchors* in HTML, are the navigational method of the Web and play a critical role in the hierarchical infrastructure of the Web.

Hyperlink Action Results

Hyperlinks, known commonly as *links*, allow a user to click on a highlighted text block, graphic, or image within a Web page to obtain one of the following three things:

- download a different Web page;
- advance from one location to another within a single Web page;
- automatically launch a user's e-mail application and open a new message addressed to a particular e-mail address;
- download a binary file or multimedia data object (MS Word file, Adobe Acrobat file, application executable file (EXE), compressed file (ZIP or SIT), audio, or video file, etc.).



Links download Web pages or multimedia data objects from Web sites that can, geographically, be located anywhere in the world.

Hyperlink Formatting

A text hyperlink is a section of text that is specially marked—usually by underlining and the color blue—to indicate to the user that it is a link. Hypertext links can be created using any of the following page elements:

- inline images: images are denoted as links via a blue frame¹⁶
- body text: text is denoted as blue and underlined

Once clicked, a link of any type will change from blue to fuchsia (purple) to indicate that it has been visited. This function helps a user distinguish between visited and unvisited links.

¹⁶ The tag has an attribute called BORDER that—when set to 0 (BORDER=0)—will remove the blue frame from an image link.

Anchor Tag Syntax

The Anchor tag defines the *beginning* and *end* of a hyperlink. The Anchor tag, `<A>`, requires one attribute, typically `HREF` (hypertext reference). `HREF` bears its name because it refers to another Web page or Internet element (e-mail address, binary file residing on FTP server, etc.).

Figure 5-1 displays the syntax for the Anchor tag. This example references the home page of a Web site.

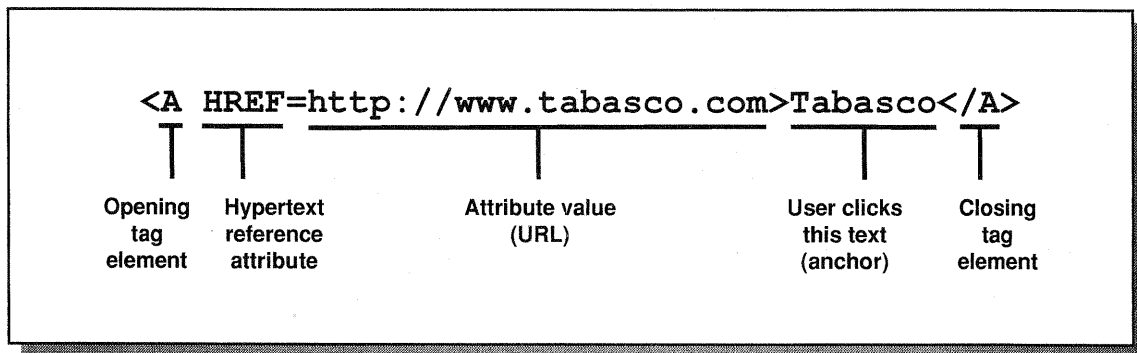


Figure 5-1: Anchor tag syntax

Four Types of Anchors

There are four primary types of hypertext anchors. Anchors can do the following:

1. Link to another Web page: reference other Web pages using the `HREF` attribute
2. Download a file: automatically download binary files residing on either Web or FTP servers (`ftp://` transfer protocol for FTP servers; `http://` protocol for Web servers)
3. Automatically generate an outgoing e-mail message: automatically launch user's e-mail application, open a new outgoing message, and address it to a specific e-mail address (`MAILTO:` URL prefix in attribute value)
4. Link to another section of the same Web page: reference another section of the same Web page (`HREF` & `NAME` attributes)

Detailed examples of these four types of anchors, including hands-on exercises, are presented throughout the remainder this Lesson.

Types of Anchors

Table 5-1 below lists the four primary types of hypertext anchors and the tags, attributes, and URL for each. Note that the anchor text that is displayed to a user in his or her browser is underlined. The destination of a NAME anchor is not underlined.

Action	Tags & Attributes	URL Syntax
Link to other Web page	<ul style="list-style-type: none"> Anchor tag (<A>) HREF attribute http:// transfer protocol 	<pre> user clicks here</pre>
Download a file from a server	<ul style="list-style-type: none"> <A> tag HREF attribute ftp:// transfer protocol http:// transfer protocol 	<ul style="list-style-type: none"> <u>Download file from Web server:</u> <pre>user clicks here</pre> <u>Download file from FTP server:</u> <pre>user clicks here</pre>
Automatically generate an outgoing e-mail message (Also called a MAILTO anchor)	<ul style="list-style-type: none"> <A> tag HREF attribute MAILTO: URL prefix 	<pre> user clicks here</pre>
Link to another section of the same Web page (Also called an "internal" link or a NAME anchor)	<ul style="list-style-type: none"> <A> tag HREF attribute NAME attribute 	<ul style="list-style-type: none"> Link within a Web page: <pre>click here for Porsche section</pre> Link within a Web page target: <pre>Porsche Section</pre>

Table 5-1: Tags, attributes, and URL syntax of primary types of anchors



"If documents can be reached and used on-line by anyone, all we need additionally is the ability to create links among them...to quote from them by direct excision."

— Ted Nelson, *inventor of hypertext and hypermedia*, 1982

Anchors That Link to Other Web Pages

The most common type of hypertext anchor is one that references (links to) another Web page. This standard type of anchor involves:

- the HREF attribute to the <A> tag;
- the `http://` transfer protocol;
- exact URL address of the Web page to which you are referring.

To create an anchor that links to another Web page, you only have to know the basic syntax of this type of anchor and the exact URL address of the page to which you are referring.

Like other types of anchors, standard links can be presented to users as either standard body text or inline images. You will conduct a hands-on exercise in which you will use an inline image as an anchor later in this lesson.

Different Types of Standard Anchors

There are three types of standard anchors: text anchors, image anchors, and image maps. You will learn how to create text and image anchors in this course. The syntax for text and image anchors is identical; the only discrepancy is whether the user is presented with a text block or an inline image for the clickable anchor.

Syntax

The syntax of standard anchors that link to other Web pages is illustrated in the following example:

- You can obtain more information regarding the Eudora Pro e-mail application from the Eudora Web site, maintained by QUALCOMM.

Common Uses

Standard hypertext anchors are used to provide a user with any type of link to another Web page at your Web site or another Web site. These types of anchors are the way in which you provide visitors to your Web site with a means of navigating your site or accessing outside resources.

As you will see in Lesson 6: *HTML 4.0 Tips & Tricks*, you can also have a standard anchor automatically launch a new browser window in which the referred Web page is displayed. This preserves the original Web page so you do not lose a visitor from your Web site and they can conveniently return to your site by closing the new window.

Exercise 5-1: Creating a Link to a Different Web Site

In this exercise, you will create the most common type of anchor: a standard hypertext link from one Web page to another. You will link from one of your pages to an outside Web page.

1. Switch applications to your text editor. Open WEBPAGE.HTM, if necessary.
2. Add the bold script (as shown below) to the text on your screen:

```
<FONT SIZE=+1>External Link (anchor tag)</FONT><P>
```

```
<A HREF=http://www.saucony.com>Link to Saucony's Web site</A><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 5-2. They should appear nearly identical. The text, Link to Saucony's Web site, should be underlined and blue (the common convention used by most browsers to denote a text anchor). If not, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

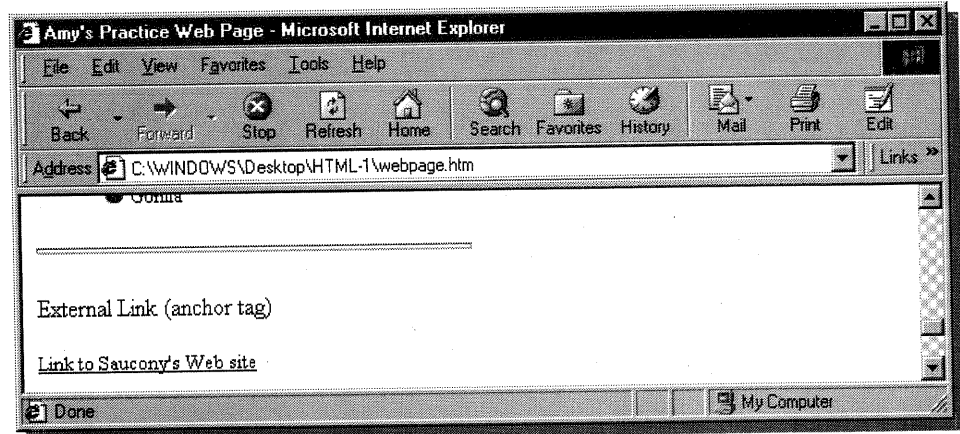


Figure 5-2: External link created with the <A> tag

7. Click the anchor you have just created entitled Link to Saucony's Web site. If you do not have a live Internet connection, your browser will display an error message.

Exercise 5-2: Linking Between Two Pages You Have Created

In this exercise, you will create an anchor that links to another Web page. Although this type of anchor is identical to the one you created in the previous exercise, this particular anchor will link from a page you have created to another page you have created (as opposed to an outside Web page owned and managed by someone else).

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the text on your screen:

```
<H3>Link (anchor tag) to another of my pages</H3>
```

```
If you want to see my other Web page, click <A  
HREF=linkto.htm>here</A><P>
```

3. Save the HTML document.
4. In your text editor, open LINKTO.HTM from the HTML-1 folder (this will close WEBPAGE.HTM).
5. Add the bold script (as shown below) to the text on your screen:

```
<HTML>
```

```
<HEAD>
```

```
<TITLE>The Destination of My Anchor</TITLE>
```

```
</HEAD>
```

```
<BODY>
```

```
<H2>It worked! My link is functional.</H2>
```

```
<HR WIDTH=50% ALIGN=left><P>
```

Congratulations to me! I just successfully created a hyperlink using a partial URL. Now I can use the Back button on the toolbar and I'll see that the anchor text on the referring Web page has turned fuchsia, an indication by the browser that the link has been "visited".

```
</BODY>
```

```
</HTML>
```

6. Save LINKTO.HTM.
7. Switch applications to your Web browser.
8. Reload the Web page (WEBPAGE.HTM).
9. Click the link here, as shown in Figure 5-3.

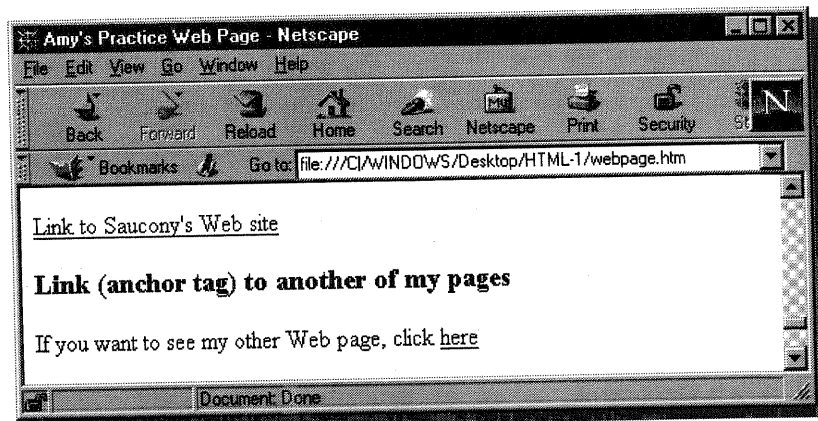


Figure 5-3: Internal link created with the <A> tag

10. The destination of the anchor (LINKTO.HTM) appears, as shown in Figure 5-4.

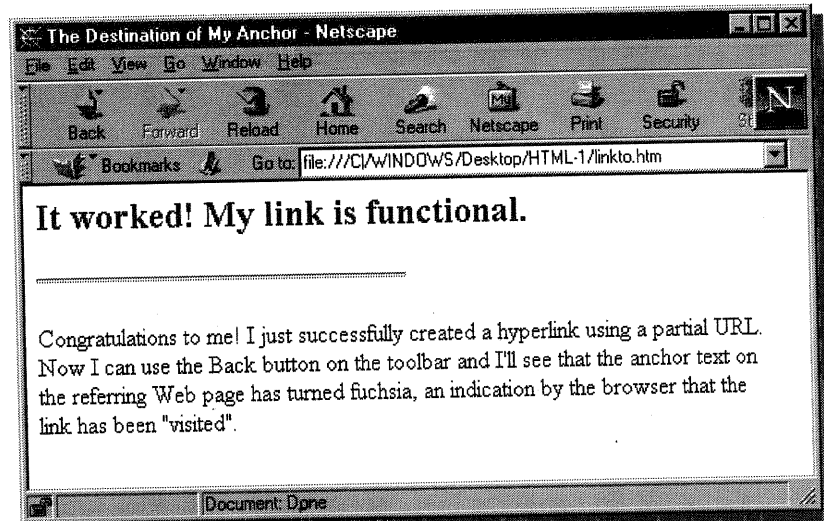


Figure 5-4: Destination of the internal link

Exercise 5-3: Creating an Image Anchor

In this exercise, you will create a standard hypertext anchor, but you will use an inline image for the clickable anchor instead of a text block.

1. Switch applications to your text editor. Open WEBPAGE.HTM, if necessary.
2. Add the bold script (as shown below) to the text on your screen:

```
<H2>Creating an image anchor</H2>
```

```
Click this image to download<BR>
another picture from the collection.<BR>
```

```
<A HREF=children.jpg><IMG SRC=pickup.jpg></A><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 5-5. They should appear nearly identical. The image of the pickup truck (PICKUP.JPG) should display a blue border, indicating that it is a hyperlink. If not, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

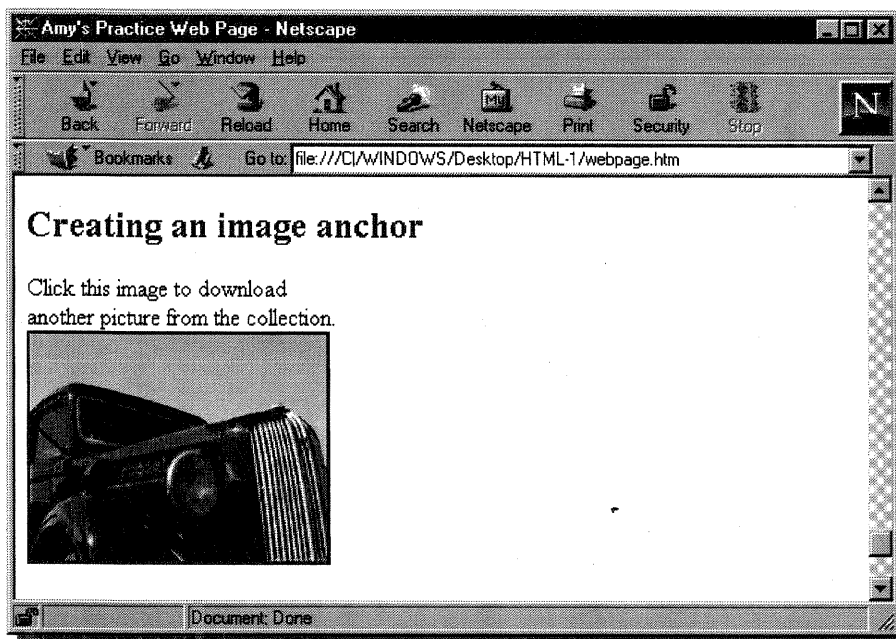


Figure 5-5: An image anchor (note the border around the image)

7. Click the image anchor. Another image should be downloaded and displayed, as shown in Figure 5-6. If the anchor does not function properly and the image file is not downloaded and displayed when the anchor is clicked, check your script against Step 2.

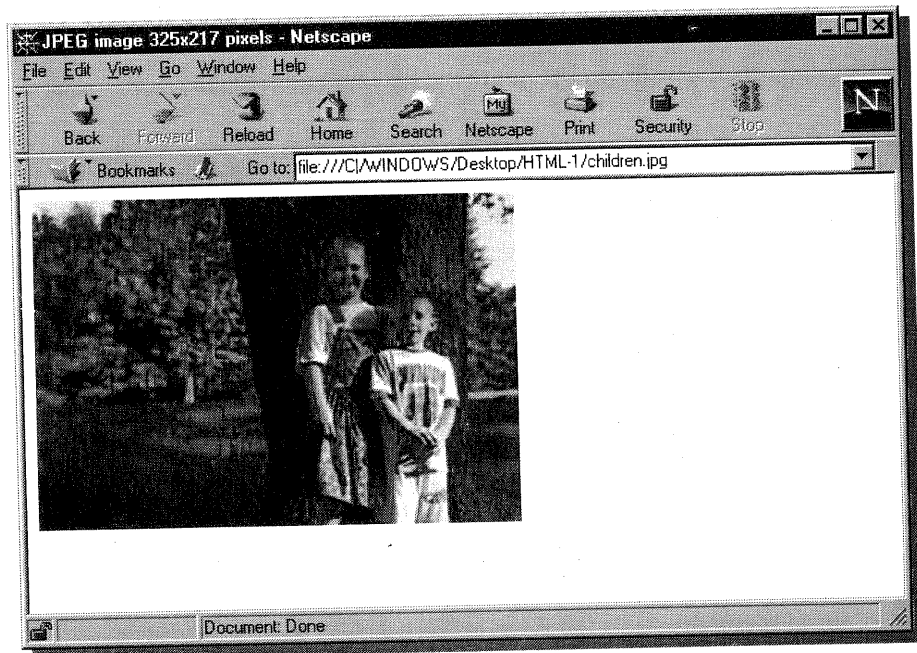


Figure 5-6: Image downloaded via an image anchor

8. Switch applications to your text editor.
9. Add the bold script (as shown below) to the text on your screen:

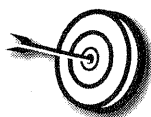
```
<H2>Creating an image anchor</H2>
```

```
Click this image to download<BR>
```

```
another picture from the collection.<BR>
```

```
<A HREF=children.jpg><IMG SRC=pickup.jpg BORDER=0></A><P>
```

10. Save the HTML document.
11. Switch applications to your Web browser. Click the **Back** button to return to your HTML document.
12. Reload the Web page.



You should notice that the image anchor no longer displays the blue border (but is still a functional hyperlink anchor). If not, repeat the steps of this exercise, taking care to accurately type the script in Step 9.

Anchors That Download Files

You can create links that download binary files from either Web servers or FTP servers. The only difference is the transfer protocol. You will learn how to create anchors that download files from FTP servers in an upcoming section of this Lesson.

The only difference between a standard anchor that links to another Web page and one that downloads a file from a Web server is that the file download URL must include the location and name of the file to be downloaded. Both types of anchors involve the HTTP transfer protocol. The `ftp://` transfer protocol is substituted when downloading files from an FTP server.

Syntax

The syntax of anchors that download files is as follows (the differences between the two types of file download anchors are presented in **bold text**).

- Download file from a Web server:

Click here to download an Adobe Acrobat (PDF) file containing the technical specifications of IBM's Aptiva SE7 (code named "Cobra") 450 MHz PC.

- Download file from an FTP server:

Click here to download an Adobe Acrobat (PDF) file containing the technical specifications of IBM's Aptiva SE7 (code named "Cobra") 450 MHz PC.

Common Uses

Anchors that download files can be employed to make files available on your Web site 24 hours a day, seven days a week. These files provide customer support, general product information, marketing and sales literature, technical specifications of products and services, technical support, etc.

Exercise 5-4: Creating a Link that Downloads a File

In this exercise, you will create a link that downloads a binary file from a Web server. To demonstrate the effectiveness of this type of link, you will download a JPEG image file that is automatically displayed by your browser. You must have a live Internet connection to complete this exercise.

1. Switch applications to your text editor and open WEBPAGE.HTM. Scroll to the bottom of the document.
2. Add the bold script (as shown below) to the text on your screen:

```
<H2>Link to a JPEG image file</H2>
```

```
This exercise creates a link that downloads a JPEG image of <A  
HREF=http://www.quessing.com/runners.jpg>runners</A> in a race.<P>
```

```
<HR WIDTH=75% SIZE=6><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page. Your screen should appear similar to Figure 5-7.

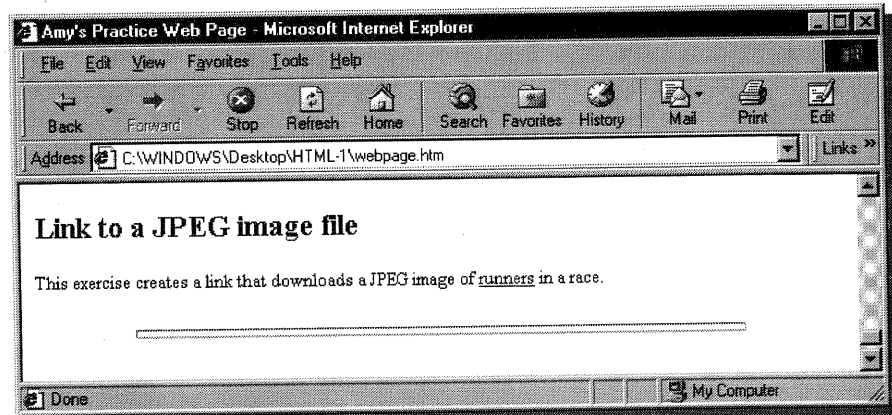


Figure 5-7: Link to download an image file

6. Click the runners link to download an image of hundreds of runners in Virginia who are very cold.

7. Compare the screen that is displayed in your Web browser with Figure 5-8. If they are not nearly identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

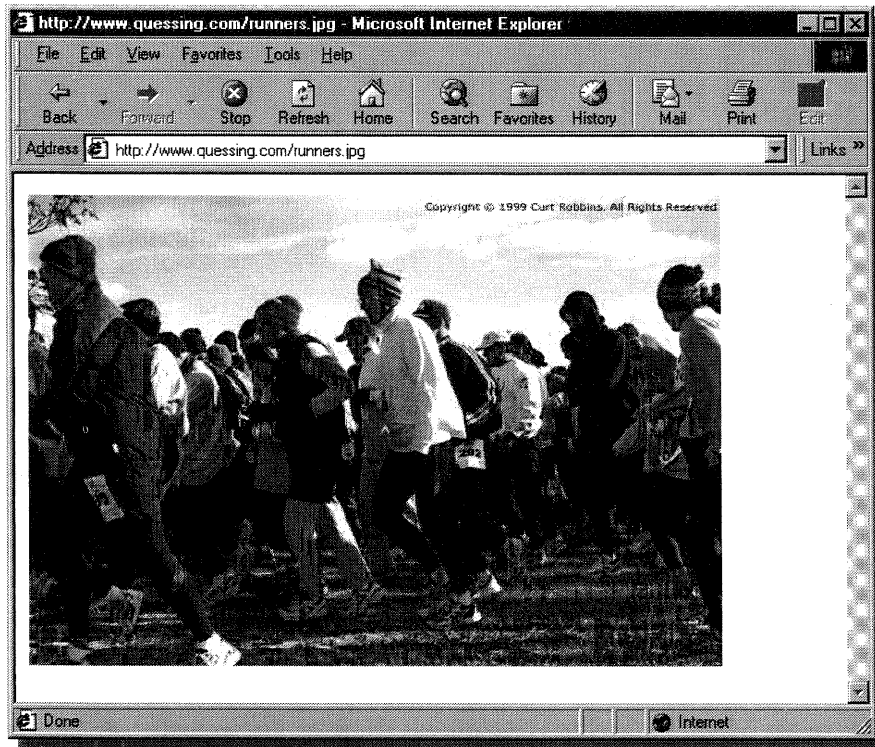


Figure 5-8: JPEG image file downloaded via a link

8. Press the **Back** button. This will return you to your HTML document.



Netscape Navigator 4.08 and older displays the pixel resolution (size; width x height) on the title bar, where the HTML title is typically displayed. Microsoft Internet Explorer displays the name of the file on the title bar, but not the size.

Because the image displayed in Figure 5-8 is a single image file, rather than an HTML document, no `<TITLE>` tag exists for display on the title bar.

Anchors that Automatically Address Outgoing E-mail

You can also create anchors that perform the following actions:

1. automatically launch a user's e-mail application;
2. automatically open a new outgoing message;
3. automatically address the outgoing message to a specific e-mail address.

This type of anchor, known as a MAILTO link, is unique in that it is only different from a standard anchor in two ways:

- the `mailto:` prefix is attached to the HREF attribute value
- the HREF value is not a Web page URL, but instead an e-mail address

The MAILTO anchor allows you to create links within Web pages that fully automate the process of a user sending an e-mail message to a specific address. This process is very automated and very user friendly.

Syntax

The syntax of the MAILTO anchor is as follows. Note, in the second example, that the e-mail address is purposefully displayed to the user. This syntactical style is preferred by some Webmasters because it allows users to notice and write down an e-mail address.

- Send us your feedback regarding our products and services.
- Send questions, comments, complaints, or general feedback to feedback@ibm.com.

Common Uses

MAILTO anchors can be employed to solicit feedback from users regarding products and services, opinions regarding your Web site, complaints, suggestions, and overall comments.



When combined with e-mail autoresponders (described in DDC's *Using the Internet in Business*), MAILTO links can create a fully automated customer response system that functions 24 hours a day, seven days a week.

Exercise 5-5: Creating a MAILTO Anchor

In this exercise, you will create a MAILTO anchor that, when clicked, will automatically launch the user's e-mail application, open a new outgoing message, and address the message to a specific e-mail address.

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the text on your screen:

Your opinions and feedback are important to us. Don't hesitate to send us a message at `feedback@ibm.com` informing us of what we're doing right, what we're doing wrong, or new products and services that you would like to see.

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Scroll to the section of the Web page that features the text displayed in Step 2 of this exercise.
7. Click the **feedback@ibm.com** link.



The default e-mail application on your PC should be launched and a new outgoing message should be opened that automatically displays the TO: address `feedback@ibm.com`.

If you completed this e-mail message and clicked the send button, the message would be sent to the address featured in the MAILTO link.

8. Return to your HTML document and create another MAILTO anchor that links to your personal e-mail address.
9. Save the HTML document, toggle over to your Web browser, and test the anchor to ensure that you scripted it correctly and it is functional.

Anchors That Link to Another Section of the Same Web Page

You can create anchors that link to another section of the same Web page. Commonly called *NAME anchors* or *internal links*, these are more complex than other types of anchors because they involve two anchor tags that work together: a referring anchor and a target anchor.

Note that the target of the referring link is not functionally an anchor because it provides no hypertext navigation functionality. It is simply a marker, or designated location, that gives the referring anchor a specific location to which to scroll the document for the user.

Involves Two Tags, Not One

NAME anchors involve two distinct tags that must be “coordinated” to operate properly. The NAME anchor tag family is comprised of the following tags:

- Referring tag: an anchor tag containing a reference to a text label preceded by a pound sign, such as ``.
- Destination tag: the anchor destination location must be marked by the NAME attribute (to the Anchor tag) and the identical text label as in the referring tag, *sans the pound sign*, such as ``.

Syntax

The syntax of a NAME anchor is as follows:

```
<A HREF="#horse">Horse Info</A><P>
```

```
<A HREF="#dog">Dog Info</A><P>
```

```
<A NAME="horse">Horse Info<P>
```

```
horse text appears here. . .
```

```
<A NAME="dog">Dog Info<P>
```

```
dog info appears here. . .
```


Common Uses

Internal anchors are commonly used in longer Web pages or Web pages that are segmented into different sections. NAME anchors can be used to create an index at the top of a large, segmented Web page. Each link in the index, when clicked, automatically scrolls to a specific section of the page.



It should be noted that NAME anchors can refer to NAME tags in *other* HTML documents. Thus, you can make a name anchor in one Web page point at an exact location in a different Web page. This is especially convenient if your Web pages are text-heavy and require a substantial amount of scrolling.



“Normal hypertext links do not of themselves imply that the document linked to is part of, is endorsed by, or endorses, or has related ownership or distribution terms as the document linked from. However, embedding material by reference (sometimes called an embedding form of hypertext link) causes the embedded material to become a part of the embedding document.”

— *Tim Berners-Lee, Director, W3C, 1997*

Exercise 5-6: Creating NAME Anchors

In this exercise, you will create several NAME anchors that refer to different areas of the same HTML document. Because the document in which the anchors will be placed is long and text-heavy, these NAME anchors will enable quick location of desired information.

1. From your Web browser, open NAME_ANCHOR.HTM from the HTML-1 folder.
2. Scroll down the page. Note the length and content of the page. As currently formatted, this page is confusing and difficult to navigate.
3. Toggle over to Notepad.
4. Open the document NAME_ANCHOR.HTM from the HTML-1 folder.
5. Insert the following script below the horizontal rule:

```
<HR SIZE=8 WIDTH=80%><P>
<CENTER>
<FONT COLOR=red SIZE=+2
FACE=arial, verdana><B>Index</B></FONT><BR>
<A HREF=#dogs>Dogs</A> | <A HREF=#erie>Lake Erie</A> | <A
HREF=#texas>Texas</A> | <A HREF=#horses>Horses</A> | <A
HREF=#michigan>Lake Michigan</A><BR>
<A HREF=#ohio>Ohio</A> | <A HREF=#hogs>Hogs</A> | <A
HREF=#superior>Lake Superior</A> | <A HREF=#georgia>Georgia</A> |
<A HREF=#cats>Cats</A> | <A HREF=#ontario>Lake Ontario</A> | <A
HREF=#virginia>Virginia</A><P>
</CENTER>
```

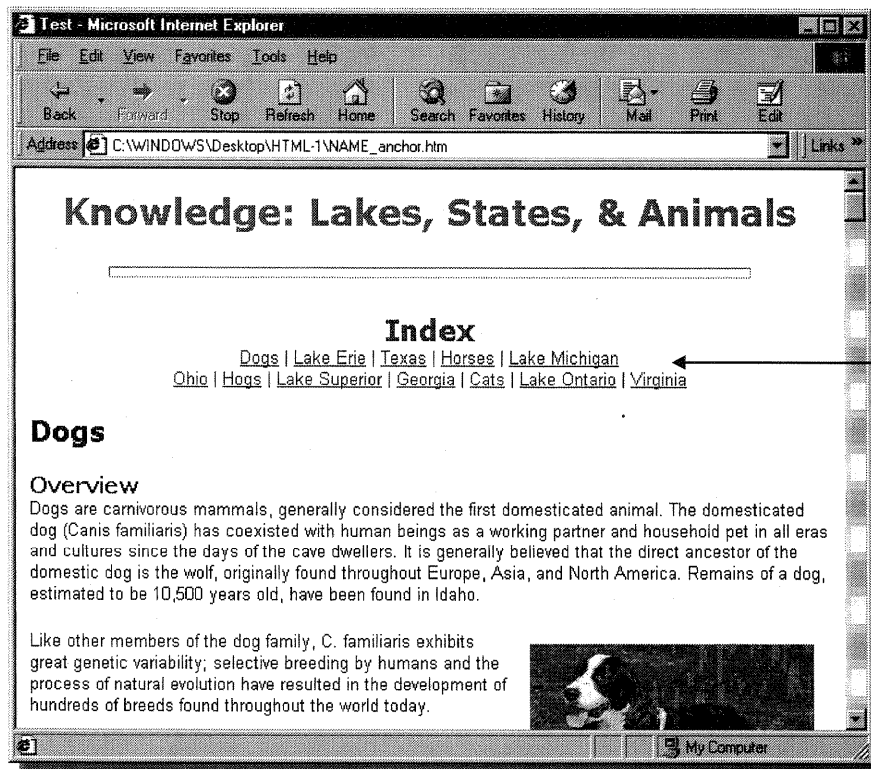
6. Save the file.
7. Add the following script to each section of the document as follows:

```
<A NAME=dogs></A><FONT SIZE=+2 FACE=arial, verdana
COLOR=navy><B>Dogs</B></FONT><P>
dog text here. . .
<A NAME=erie></A><FONT SIZE=+2 FACE=arial, verdana
COLOR=navy><B>Lake Erie</B></FONT><P>
<A NAME=texas></A><FONT COLOR=navy FACE=arial, verdana
SIZE=+2><B>Texas</B></FONT><P>
```

8. Continue to add the `` opening and closing tags to each section header for the remainder of the document.
9. Save the document.
10. Toggle over to your Web browser. Reload the Web page.



The index appears at the top of the page, as shown in Figure 5-9.



Hypertext index
created using
NAME anchors

Figure 5-9: Index composed of NAME anchors which refer to `` tags

11. In the index section at the top of the page, click the hyperlink labeled **Georgia**. The page will automatically scroll to the section of the document that contains the NAME anchor for *georgia*.
12. Return to the top of the page by clicking the **Back** button or pressing `<CTRL + HOME>`.
13. Test all of the hyperlinks in the index. If any links are not functional, return to the HTML document in Notepad and fix any errors. Continue until all links are functional.

Exercise 5-7: Adding “Return to Top” NAME Anchors

In this exercise, you will add NAME anchors to each section of the file you worked with in the last exercise. You will add one NAME anchor for each section of the document (in other words, for each `` tag). These NAME anchors will be identical and allow the user to conveniently return to the top of the document to access different links from the index.

1. Toggle over to Notepad. Open NAME_ANCHOR.HTM if necessary.
2. Type the following script that appears in bold:

```
<A NAME=index></A><FONT COLOR=red SIZE=+2  
FACE=arial,verdana><B>Index</B></FONT><BR>
```



This anchor will serve as the destination of the HREF anchors that you will add in the following steps of this exercise.

```
...breeds become established, they are promoted from a  
miscellaneous class to official status.<P>
```

```
<A HREF=#index><B>Return to Index</B></A><P>
```

```
<HR ALIGN=left WIDTH=75% SIZE=7><P>
```

3. Copy the text `Return to Index<P>` to the clipboard (`<CTRL + C>`) and paste it (`<CTRL + V>`) into each section in the same location as in the above example (just after the article text but before the horizontal rule).
4. Save the document.
5. Toggle over to your Web browser.
6. Reload the Web page.
7. Click one of the links in the index section.
8. Scroll to the bottom of the section and click the **Return to Index** link.



You are returned to the top of the page. Test all of the **Return to Index** links in the document. Fix any links that are not functional.

Lesson 5 Summary

- ▶ The Anchor tag, `<A>`, is used to create a hyperlink from one Web page to another.
- ▶ Anchors may be either text (any block size) or images. Text anchors are blue and underlined. Image anchors have a blue border. You can remove the blue outline from an image anchor by using the `BORDER=0` attribute in the `` tag.
- ▶ When anchors have been visited by a user, their color changes from blue to purple/fuchsia.
- ▶ Anchors can link to other Web pages at the same Web site or to a Web page at a different Web site. There are four different types of anchors: 1) standard anchors that link to another Web page, 2) anchors that download binary files from Web servers or FTP servers, 3) MAILTO anchors that automatically send e-mail messages, and 4) NAME anchors that link to a different section of the same Web page.
- ▶ Standard anchors are the most common type of anchor and involve the Anchor tag (`<A>`) and the HREF attribute. You must know the exact URL address of a Web page to which you are referring. This URL address is the value of the HREF attribute.
- ▶ There are two types of anchors that download files from servers: 1) anchors that download files from Web servers using the `http://` transfer protocol and anchors that download files from FTP servers using the `ftp://` transfer protocol. This type of anchor can download *any* type of binary file.
- ▶ MAILTO anchors can allow you or your organization to solicit feedback from visitors to your Web site. MAILTO anchors are used to gather general feedback, complaints, comments, customer testimonials, etc. Technically speaking, MAILTO anchors do three things when clicked: 1) automatically launch a user's default e-mail application, 2) automatically open a new outgoing e-mail message, and 3) automatically specify the TO e-mail address of your choice.
- ▶ NAME anchors allow you to create links between one section of a document and other sections of the same document. Often called "internal" links, NAME anchors are especially beneficial as a navigation aid in larger text documents that are segmented into distinct sections.
- ▶ NAME anchors actually involve two separate anchors, a referring anchor that features a pound sign (#) preceding a text label, and a target anchor (``) that marks the spot to which the Web page should be scrolled when the referring anchor is clicked by the user.